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CURRENT LITERATURE.

BOOK REVIEWS.

The physiology of plants.

Another part of the new edition of Pfeffer's text-book of plant physiology [1] has recently been published. This is the first part of Vol. II, which deals with energy exchanges in the plant. The first volume appeared in 1897.[2] This part embraces ten chapters, headed as follows: I. Movement of growth; II. Mechanism of growth; III. Growth and cell division; IV. Elasticity and cohesion in the plant body; V. Tissue tensions; VI. Influence of external conditions upon growth; VII. Internal causes of specific configuration; VIII. Variation and heredity; IX. Rhythm in the processes of growth; and X. Power of resistance to extreme conditions. The subject-matter has been largely rewritten, so that the present edition is quite distinct from the former one. The treatment is divided into topics which are numbered consecutively throughout the volume, regardless of chapters.

Each chapter contains a full and critical treatment of the present condition of the subject, together with a historical résumé of the contributions which have been most important in bringing our knowledge to its present state. The literature is pretty well brought up to the date of publication, and citations by footnotes are very numerous. The practical value of these citations would have been much enhanced had the use of the sign *l. c.* been avoided by an occasional repetition, and had a more general uniformity in the form of citation been observed; here and there appears even that *bête noire* of the student of scientific literature, a reference by page to a repaged separate. Besides this comprehensive treatment of our present knowledge, a discussion of the subject from the theoretical side is also presented. As is quite usual with this author, the discussion often goes so far as to point out not only promising lines for future research, but also the possible and probable results of such work.

If there can be noted in the style of the author any change since the appearance of the previous edition, it is in the direction of greater clearness and directness of statement. The curiously involved sentences, which have made Pfeffer one of the most difficult writers for the foreign student, are still in evidence, but, if we judge rightly, not so emphatically in evidence as heretofore. A tendency to avoid terms which serve only to cover up our ignorance, and an attitude of mind which seeks for explanations of physiological phenomena on physical and chemical grounds, is somewhat more pronounced here than in the previous edition. A feeling of admiration and wonder must be aroused in every reader of this volume by the exceedingly broad and familiar grasp of the whole subject that is shown by the author. There seems to be no corner of the realm of physiology into which the acuteness of Dr. Pfeffer's intellect has not allowed him to find his way. This seems to us to be the strongest among the many good qualities possessed by the book, but coupled with it — perhaps necessitated by it — is a quality which is surely destined to cause much dissatisfaction and weariness of the flesh on the part of the student. We refer to the numerous cross references found on nearly every page. To get the author's whole view of any subject one must at length read a good part of the volume.

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[1] PFEFFER, W., Pflanzenphysiologie, ein Handbuch der Lehre von Stoffwechsel und Kraftwechsel in der Pflanze. Zweite völlig umgearbeitete Auflage. II Band: Kraftwechsel. 1 Hälfte. 8vo, pp. 1–353. *figs. 31.* Leipzig: Wilhelm Engelmann. 1901.

[2] See review in BOT. GAZ. **25**: 132. 1898.

English readers will hope for the speedy appearance of a translation of this book into their own tongue, for it will surely be from now on the standard reference on the physiology of growth and irritability. All students of this subject will await with impatience the publication of the rest of the volume. — BURTON E. LIVINGSTON.

Enzymes and their applications.

IN 1898 Dr. Jean Effront,[3] of Brussels, published the first volume of an important work upon enzymes and their industrial applications. That work has recently been translated by Professor Prescott, of the Massachusetts Institute of Technology, with the desire "to make available in English the valuable material of the original French work." This volume is devoted to the enzymes which act upon carbohydrates, and to theoxidases. In addition to these, however, it includes a discussion of the glucoside and glyceride enzymes. As only one chapter is devoted to them and one to the oxidases, it will be seen that the greater part of the work is devoted to the carbohydrate enzymes.

Throughout the book the emphasis upon the industrial relations of these substances is very strong. For example, chapter 11 is devoted to the discussion of chemical transformations which accompany germination, the methods of malting, sorting, steeping, germination, and brewing. Chapter 12 is devoted to the rôle of amylase in the brewery; chapter 13 to the manufacture of maltase; chapter 14 to the fermentations which occur in bread

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[3] EFFRONT, JEAN, Enzymes and their applications. Translated by Samuel C. Prescott. Vol. I: The enzymes of the carbohydrates. The oxidases. pp. xi + 322. New York: John Wiley & Son. London: Chapman & Hall. 1902. $3.00.